UNIVERSITÄT HOHENHEIM

Publikation

Comparative nutritional evaluation of raw, methanol extracted residues and methanol extracts of Moringa (Moringa oleifera Lam.) leaves on growth performance and feed utilization in Nile tilapia (Oreochromis niloticus L.).

Publikations-Art:	Zeitschriftenbeitrag
Autor(en):	Afuang, W. B., Siddhuraju, P. and Becker, K.
Erscheinungsjahr:	2003
Veröffentlicht in:	Aquaculture Research
Band/Volume:	34
Seite (von - bis):	1147-1159
Abstract:	The suitability of rawand methanol-extracted moringa (*Moringa oleifera* Lam.) leaf meal to replace 10%, 20%and 30% of the total fish meal-based dietary protein in tilapia feeds was tested. Ten isonitrogenous and isocalorific feeds (35% crude protein and 20MJ kg^{-1} gross energy), denoted as diets 1 (fish meal- based control), 2, 3, 4 (containing 13%, 27% and 40% raw moringa leaf meal), 5, 6, 7 (containing 11%, 22% and 33% methanol-extracted moringa leaf meal), and 8, 9, 10 (containing methanol-soluble extracts of the raw moringa leaf meal at the same level as would have been present in diets 2, 3, 4) were prepared. Forty tilapia (16.7 ± 2.4 g), kept individually, were fed the experimental diets (four fish per treatment) at the rate of 15 g feed per kg metabolic body weight ($kg^{0.8}$) per day. A reduction in the growth performance was observed with an increasing level of raw moringa leaf meal (diets 2-4), whereas inclusion of methanol-extracted leaf meal (diets 5-7) had no significant ($P < 0.05$) effect on the growth performance compared with the control (diet 1). The growth performances of fish fed diets 8-10 containing methanol extracts of the moringa leaf meal were also similar to the control. The chemical composition values of the gained weight showed that lipid accretion decreased with increased inclusion of moringa leaves, and ash content increased. Dietary moringa methanol extracts reduced protein accretion, but had no effects on lipid and ash contents compared with the control. The inclusion of raw, methanol extracted residues and methanol extracts of the moringa leaf meal (diets 3 and 4, 5, 6 and 7, and 8, respectively) reduced the plasma cholesterol content significantly. Similarly, a significant reduction in muscle cholesterol was observed in fish fed the diets 4, 8, 9 and 10. It was concluded that the solvent extracted moringa leaf meal could replace about 30% of fish meal from Nile tilapia diets.